

What is claimed are:

1. A semiconductor light-emitting device comprising an elongated light transmitter (2); a pair of metallic heat sinks (4) disposed on opposite ends (2a) of the transmitter (2); and a semiconductor light-emitting element (3) mounted each of said heat sinks (4) toward the transmitter (2) for emitting light which is introduced into the transmitter (2) from the both ends thereof to radiate light outside from an outer peripheral surface (2b) of the transmitter (2).

2. The semiconductor light-emitting device of claim 1, wherein each of said heat sinks (4) comprises a reflector (5) integrally formed with or secured on a main surface (4a) of the heat sink (4),

said reflector (5) has a flaring inner surface (5a) which gradually expands toward said transmitter (2); and

said semiconductor light-emitting element (3) is surrounded by the inner surface (5a) of said reflector (5).

3. The semiconductor light-emitting device of claim 1 or 2, further comprises a light reflective film (6) formed on at least a portion of outer or inner peripheral surface (2b) of the transmitter (2).

4. The semiconductor light-emitting device of any one of claims 1 to 3, wherein said transmitter (2) is formed of transparent or translucent glass or resin into a hollow or solid cylindrical shape; and

each end of said transmitter (2) is received in an annular groove (7a) formed on a plastic encapsulant (7) which envelops said heat sink (4).

5. A method for producing a semiconductor light-emitting device, comprising the steps of:

providing heat sinks (4) each having a reflector (5);

securing a semiconductor light-emitting element (3) on a main surface (4a) of each heat sink (4) within said reflector (5);

electrically connecting an electrode on said semiconductor light-emitting element (3) and an outer lead (9) through a lead wire (10);

forming a plastic encapsulant (7) which envelops the main and side surfaces (4a) of the heat sink (4), a side surface of the reflector (5) and an inner end of the outer lead (9); and

joining each end of an elongated light transmitter (2) to the reflector (5) toward the semiconductor light-emitting element (3).

6. A linear light source comprising an elongated light transmitter (2) which has an irradiation surface (2e) and two ends; a semiconductor light-emitting element (3) for emitting light introduced into said light transmitter (2) from each of two ends thereof; and a plurality of half-mirrors (20) provided in said light transmitter (2) for reflecting light introduced into said light transmitter (2) from light-emitting element (3) out of said light transmitter (2) through the irradiation surface (2e).

7. The linear light source of claim 6, wherein a plurality of said half-mirrors (20) are provided in said light transmitter (2), said half-mirrors (20) being across and inclined at a certain angle to a longitudinal central line of said light transmitter (2).

8. The linear light source of claim 7, wherein said half-mirrors (20) have the lower light-reflectivity and the higher light permeability, the closer said half-mirrors (20) are disposed to the semiconductor light-emitting element (3).

9. The linear light source of any one of claims 6 to 8, wherein at least one total reflection mirror (21) is provided inside said half-mirrors (20) in the light transmitter (2) for reflecting light permeated through said half-mirrors (20) to the outside of said light transmitter (2) through said irradiation surface (2e).

10. The linear light source of any one of claims 6 to 9, wherein said half-mirror formed into a plate shape is sandwiched between a plurality of segments (2g) of said light transmitter (2).

11. The linear light source of any one of claims 6 to 9, wherein said half-mirrors (20) are formed by vapor deposition on at least one inclined surface of plural segments (2g) of said light transmitter (2), and said inclined surfaces of plural segments (2g) are in contact to each other.